

# **Syllabus: Models of the Universe from Hipparchos to Hawking**

*Spring 2003*

*Graham School*

*Master of Liberal Arts*

*Rocky Kolb*

*Lectures: Saturdays 9:30am - 12:30pm, Gleacher Center*

## **The Solar System**

- Readings: Kolb, *Blind Watchers of the Sky*
- April 5: Introduction to *Models*, introduction to cosmology, introduction to the universe, and a look at the sky. Greek astronomy through Ptolemy. Retrograde motion, epicycles, the Greek universe.
- April 12: Copernicus: The heliocentric universe. Brahe: Measuring the sky.
- April 19: Kepler: The laws of planetary motion. Galileo: The triumph of the scientific method.
- April 26: Galileo: The tribulations and the trial. Newton: The clockwork universe.

## **Galaxies and the Universe**

- Readings: Hogan, *The Little Book of the Big Bang*; Guth, *The Inflationary Universe*, Chapters 1-9
- May 3: The distance scale.
- May 10: The Realm of the Nebulae.
- May 17: The birth and evolution of the big bang.

## **The Megaverse**

- Readings: Guth, *The Inflationary Universe*, Chapters 10-17; Hawking, *A Brief History of Time*.
- May 24: The inflationary universe: The universe from nothing.
- May 31: Dark matter and dark energy
- June 7: Before the big bang: The universe from less than nothing.